

OGDEN ARSENAL, STANDARD PELLETING MAGAZINE
(Ogden Arsenal, Building 1652
Ogden Arsenal, Missile Service Shop)
East side of Ironwood, south of Browning Street
Layton vicinity
Davis County
Utah

HAER No. UT-84-AN

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UTAH
6-LAY. V,
1 AN -

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWINGS

HISTORIC AMERICAN ENGINEERING RECORD
INTERMOUNTAIN SUPPORT OFFICE - DENVER

National Park Service
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OGDEN ARSENAL, STANDARD PELLETING MAGAZINE
(OGDEN ARSENAL, BUILDING 1652)
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Location: East Side of Ironwood, south of Browning Street, East Fuze Plant, Hill Air Force Base, Layton Vicinity, Davis County, Utah

Date of Construction: 1941

Architect: Unknown

Builder: Unknown

Present Owner: Hill Air Force Base

Present Use: Munitions Storage

Significance: Building 1652 housed the Tetryl pelleting operations for fuzes used in 37mm anti-tank ammunition that was produced at Ogden Arsenal. The building provides particularly vivid images of the processes involved in the manufacture of munitions at Ogden Arsenal during World War II. This building, along with other structures at the base, renders a unique picture of the U.S. Army build-up which occurred on the eve of and during World War II.

History: Building 1652 housed the Tetryl pelleting operations for fuzes used in 37mm anti-tank ammunition that was produced at Ogden Arsenal. Tetryl is a very powerful explosive commonly used in the manufacture of primary and secondary charges for blasting caps. Because of its very high melting point it was pressed into pellets rather than melted and cast.

Small quantities of blended Tetryl (100 lbs. Tetryl mixed with 1 lb. Graphite) were transferred from a rest house to Building 1652 in one-pint rubber cups and placed next to pelleting machines. Pelleting presses that were converted from pharmaceutical uses produced pellets with a consistent size and density that could easily be loaded into fuze bodies in the Fuze Loading Building (Building 1642).

Before processing a load of Tetryl, the pelleting presses were inspected to be sure the hopper was 1/2" above table, and the powder frame had .064 clearance. The belt and ground wire were checked every other run, and the complete machine was greased and oiled once daily. The master switch and machine switch were turned on outside of the building before the worker entered the workroom to begin operations.

Once an hour, pellets were tested for accuracy. One pint of blended tetryl was placed in the hopper, and the press run for 20 seconds. These test pellets were turned over to an inspector, who ordered any adjustment for height or weight of the pellet necessary (except the pressure plate, which was only adjusted by the foreman).

During production, the pelleting press was run for 2 1/2 minutes per pint of blended tetryl to yield 250 pellets. Four cups (250 pellets each) were placed in a rubber bucket and transferred to a rest house before going to Building 1642, the Loading & Assembly Line Building. Tests were taken (10 pellets per test) from every other pint of tetryl processed. Inspectors gauged the pellets for accurate size and weight (each pellet was required to weigh between 26 and 27 grains and be between .442" and .447" in height).

Many of the orders received for manufacture of different types of ammunition were not accompanied by drawings or specifications directing their manufacture, so individual production sites were responsible for the invention, development, and modification of various types of machine tools like pelleting presses. Some of the presses used in shaping Tetryl pellets in Building 1652 were converted from presses procured from pharmaceutical companies who used the machines to manufacture pills and other medications. These presses did not contain punches that were suitable for processing explosives, so special punches of the type, shape, and form required were made in the machine shop at Ogden Arsenal. In some cases, the machinery needed to make the punches was also developed at the Arsenal.

Building 1652 was designed engineers at Picatinny Arsenal and customized to suit the needs of Ogden Arsenal. Each building of this type was constructed of varying lengths to accommodate different pelleting functions and equipment. Due to the highly volatile nature of the chemicals involved, this building was designed in the "Arsenal Style," with concrete fire-walls that extend through the roofline separating all rooms that housed explosives. This concrete skeleton supports exterior walls that are constructed of lightweight hollow tile blocks that were engineered to absorb and deflect the force of an explosion outward, away from the rest of the building. The broad hip-roof overhang provides shelter for circulation between rooms.

General

Description: Building 1652 (20'4" x 137'0") is a one-story, gable-roofed building located in the original West Fuze Plant area. However, Building 1601 is shorter than others pelleting magazines at Ogden Arsenal (like 2142). Reinforced poured concrete columns support hollow tile walls. Sixteen entry doors lead into sixteen separate rooms that are only accessible from the exterior. Double blast doors and 15-pane hopper windows are present on each of these rooms, which are divided by five groups of three concrete fire walls. These fire walls protrude through the roof of the building, clearly articulating the interior rooms. A continuous corridor runs along the east side. Between each pair of rooms is a corridor to an exterior door. One end of the building contains a restroom facility that extends the width of the building. The 4:12 slope roof is covered with corrugated asbestos and lightning "aerials" (rods) along the ridge line. The gable roof overhangs approximately five feet on each side to shelter the loading areas.